# (19) World Intellectual Property Organization

International Bureau





### (43) International Publication Date 11 March 2004 (11.03.2004)

## (10) International Publication Number WO 2004/019974 A3

- (51) International Patent Classification7: C07K 14/54, A61K 39/00, A61P 11/00, A61K 39/385, A61P 37/08
- (21) International Application Number:

PCT/GB2003/003703

- (22) International Filing Date: 28 August 2003 (28.08.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

GB

(30) Priority Data:

0220212.5 30 August 2002 (30.08.2002) 0304672.9 28 February 2003 (28.02.2003)

- (71) Applicant (for all designated States except US): GLAXO GROUP LIMITED [GB/GB]; Glaxo Wellcome House, Berkeley Avenue, Greenford, Middlesex UB6 0NN (GB).
- (71) Applicant and
- (72) Inventor: ASHMAN, Claire [GB/GB]; GlaxoSmithKline, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY (GB).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): ELLIS, Jonathan, Henry [GB/GB]; GlaxoSmithKline, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY (GB).

- (74) Agents: EASEMAN, Richard et al.; GlaxoSmithKline, CIP (CN925.1), 980 Great West Road, Brentford, Middlesex TW8 9GS (GB).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

### Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 22 July 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: IMMUNOGENIC COMPOSITION COMPRISING AN IL-13 ELEMENT AND T CELL EPITOPES, AND ITS THER-APEUTIC USE

(57) Abstract: The present invention relates to isolated immunogens and their use in the treatment of diseases that are treatable with neutralisation of IL-13, such as COPD, asthma and atopic disorders such as hayfever, contact allergies and atopic dermatitis. In particular the invention relates to the neutralisation of the biological effects of IL-13 by raising an immune response against the IL-13 by vaccination of a mammal with immunogens comprising the native or mutated amino acid sequence of IL-13, and foreign T-helper epitopes either inserted in, or attached to the IL-13 sequence or present in carrier polypeptides. Also provided by the present invention are DNA vaccines that comprise a polynucleotide sequence that encodes the immunogens of the present invention. The invention further relates to pharmaceutical compositions comprising such immunogens and their use in medicine and to methods for their production.

